

**College of Arts and Sciences
Department of Physics
Course Syllabus**

1 Credit Hour

PHYS –153 L: General Physics I Lab

I. Course Description

This is a laboratory class designed to accompany PHYS 153 General Physics I. Selected experiments in physics are conducted. Co-Requisites: PHYS 153 or completion of Physics 153.

II. Rationale

General Physics I Lab is a one-semester laboratory course for science majors covering the basic concepts in physics. The course is designed to accompany the lecture course, General Physics I (PHYS 153). In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are forces, laws of motion, linear momentum, statics, periodic motion, uniformly accelerated motion, energy and motion, free fall, inertia, circular motion, angular momentum, ballistics, mechanical properties of materials, and collisions.

III. Competencies

- *Personal and Professional Responsibility.* Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.
- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.
- *Planning and Organization.* Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the physical environment and its relationship to man
- Understand scientific laws, principles, and theories
- Think critically and independently and be able to reason effectively
- Be proficient in oral articulation and written expression
- Be adept in general and scientific terminology

V. Course Content

- Force Table
- Composition of Forces
- Newton's Second Law of Motion
- Free Fall
- Air Track
- Inertia Balance
- Inclined Plane
- Non-concurrent Forces
- Head-on-collision- Air Track
- Centripetal Force
- Centripetal Force- Air Table
- Ballistic Pendulum
- Springboom Crane
- Ladder
- Rotational Kinematics- Air Table
- Rotating Cross-Moment of Inertia
- Rotating Cross-Angular Momentum

- Torsion Pendulum
- Energy and Motion
- Modulus of Rigidity
- Hooke's Law
- Uniformly Accelerated Motion- Free Fall (Computerized)
- Uniformly Accelerated Motion- Air Track (Computerized)
- Head-on-collision- Air Track (Computerized)

VI. Learning Activities

Writing Lab reports from Lecture/Note-taking
 Class Discussions
 Problem-Solving

VII. Special Course Requirements

The *Laboratory Manual* is provided by the Department of Physics through the instructor when the student presents a validated fee sheet.

VIII. Evaluation Procedures

The grade in this course will be based solely upon the number and quality of laboratory reports that are submitted to the instructor. The laboratory report is to have the following parts:

1. Student's Name
2. Exercise Number
3. Title of the Exercise
4. Purpose or Objective
5. Theory
6. Procedure and Materials
7. Data and Results
8. Conclusions

Grading scale:	A =	90 or more points
	B =	80 – 89 points
	C =	70 – 79 points

D = 60 – 69 points
F = 59 or below

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX. References

Textbook:

General Physics, Physics 153 Lab Manual

Recommended Journals

The Physics Teacher

Physics Today

Computing in Science & Engineering

Journal of Undergraduate Research

Journal of College Science Teaching

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.